REMARKS

This Reply is responsive to the Office Action mailed September 20, 2007. Reconsideration of the rejections set forth therein is respectfully requested in view of the amendments made to the claims and the following remarks.

Applicant herein amends Claims 1, 11, 21 and 32 and cancels Claims 9, 10 and 33.

As a result of the present amendments and the following remarks, Applicant respectfully avers that all currently presented Claims are in condition for allowance and the same is respectfully requested after reconsideration.

Claim Rejections under 35 U.S.C. § 103

The Examiner rejects Claims 1-3, 5-9, 11-13 and 15-19 under 35 USC 103(a) as being unpatentable over Childs and further in view of Yanagawa.

Claim 1:

With respect to Claim 1, the Examiner finds that Childs teaches:

[a] method for converting source color points in source image data from a source color space to a target color space, said source color space defined by a combination of N source primary color points, wherein N is an integer, the method comprising: (see Childs at Figure 4, page 12, para 3 where “four display drive signals” correspond to “target color space”; where “four” corresponds to “N+1”;

where “three primary transmission system” corresponds to “source color space”; where “three” corresponds to “N”; where “Rs, Gs and Bs” corresponds to “three primary color points fo source color space”)

for the target color space, defining a set of at least N+1 target primaries in which to render said source color points as a combination of said target primaries (see Childs at Figure 5, page 17 last paragraph where “four display color primaries Rd, G1d, G2d, Bd” corresponds to “defining a set of N+1 primaries”; where “point D65/colours inside the triangles” corresponds to “color point rendered as a combination of said primaries”); said at least N+1 target primaries forming the boundary of the target color space (see Figure 5, Rd, G1d, G2d, Bd form the boundary of the target color space formed by these colors);

defining an interior color point (see D65, Figure 5) positioned in the interior of the boundary of said target color space;

dividing said target color space into a set of regions that are bounded by at least two of the at least N+1 target primaries and by said interior color point (see Figure 5, page 8 paragraph 4; “dissecting the colour gamut of display” corresponds to “dividing said target color space”; where “triangles” corresponds to “regions”; where “formed by sets of three of the display primaries” corresponds to “bounded by at least two of the N+1 primaries” – according to the Examiner, Figure 5 shows that the triangles are formed comprising two primaries and an imaginary primary G3d, but do not include the interior color point; however, it shows how to divide a triangles into

regions using two of at least N+1 primaries and a third color point which resides on the boundary of the target color space);

calculating a solution matrix for each said region (see page 9, last paragraph to page 10, 3rd paragraph; where "take sets of three of the display primaries and form a 3 by 3 display matrix" corresponds to "forming solution matrices for each said region"; where "the separate solution ... each solution produces drive signals" corresponds to "calculating solution matrices");

for a given source color point in said source color space, selecting one of said solution matrices for rendering said source color point in said target color space (see Figures 3 and 5, page 10, 1st paragraph; page 12, 4th paragraph; where "D65/white point" corresponds to "any given color point"; where "Rs, Gs and Bs system primary signals" correspond to "source color space"; where "a logic unit ... selects a set for which each pixel has only positive output signals and these respective matrix outputs are input to switches controlled by the logic unit" corresponds to "selecting one of the solution matrices for rendering said source color points with said target primaries"); and

computing an output color point using said source color point and said selected solution matrix (see Figure 4, where "output from matrix units" corresponds to "the output color points").

The Examiner notes that Childs does not explicitly disclose that the color space is divided into regions at least two primaries and the interior color point.

However, the Examiner finds that Yamagawa teaches to a triangle with vertices at the points R', G' and B', which is the gamut of color of reproducible colors, shift toward the point W'. The Examiner cites Yamagawa at Figure 2, col. 5, lines 60-67 to col. 6, lines 1-12. Further, the Examiner finds that Figure 2 shows the primary colors R', G', and B' shift towards the point white W', which is the interior point of triangle formed by R'G'B'.

Further, the Examiner finds that Childs teaches that overlapping triangles can be used to avoid noise and that it is possible to calculate an analysis for a triangle that uses two real primaries and one synthetic primary, made by mixing two others.

The Examiner finds that Yanagawa teaches the importance of a white point, which is included in the triangle R'G'B' so that when R'G'B' is shifted to the white point, it produces a narrow gamut of reproducible color (col. 6, lines 1-12).

Thus, the Examiner concludes, a person of ordinary skill has good reason to pursue the option of forming more overlapping triangles as taught by Childs by using the white point by shifting those colors. If this leads to anticipated success, it is likely the product not of innovation by of ordinary skill and common sense. Therefore, the Examiner concludes that it would have been obvious to try and pursue the known option forming more overlapping triangles using the white point, with a reasonable expectation of success.

As to the current rejection of currently amended Claim 1, Applicant respectfully traverses.

Applicant amends Claim 1 to contain substantially the limitations of Claims 9 and 10 – with the added limitation that the target color space be divided into sets of non-overlapping regions. As will be discussed further herein, such a claimed invention offers results that are neither anticipated nor predicable from the combination of prior art references of record.

In short, the claimed invention of Claim 1 comprises a single 3x3 multiplier (thus resulting in lower hardware costs) into which is loaded a set of coefficients that comprise a solution matrix. These solution matrices and their associated set of coefficients are calculated and stored into a coefficient storage. These coefficients are selected depending upon the hue angle of the source image data and then loaded into the multiplier.

By contrast, Childs teaches away from the use of non-overlapping regions because Childs actually constructs individual multipliers for each region (see Childs at Figure 4, page 12 – note individual matrix arithmetic units 12, 14 and 16). Overlapping regions in Childs leads to a reduction in the number of multipliers – which is not necessary for the claimed invention of Claim 1. Childs calculates all possible solutions and then selects the solution set that does not contain negative values.

"The multi-primary problem can be overcome by dissecting the colour gamut of the display into triangles formed by sets of three of the display primaries, and using any analysis which produces only positive drive signals. Unfortunately, not all of the triangles thus formed will contain the balance point of the system and so the mathematics of Section 2 cannot be used directly, also it may be difficult to set up the display device in practice. For a multi- primary display there are several solutions to this.

The display may be made using three primaries at a time forming triangles which do not overlap; overlapping triangles are then required only for setting up the display. This approach, of using contiguous non-overlapping triangles, might cause some difficulties if the implementation of the following mathematics is not sufficiently accurate; noise could cause fast switching between triangles resulting in unfamiliar effects.

As an alternative, overlapping triangles can be used and the switching between triangles can then employ hysteresis to avoid these effects. It is possible to calculate an analysis for a triad which uses two real primaries and one synthetic primary, made by linearly mixing two others .

The calculation processes required to produce the matrices which connect the transmission signals with the display primaries is as described in Section 2. The concept of balancing each display primary triad individually to an illuminant is retained, even though not all of the triads contain the white point. Any triad not containing the white point will produce a column in the display matrix containing only negative numbers, and the appropriate multiplier (l,m or n) is negative. This is only a mathematical problem, and does not render the problem insoluble as is shown below."

By contrast, the claimed invention of Claim 1 reduces the amount of hardware considerably by calculating multiple sets of coefficients but may use a single multiplier unit in order to calculate a suitable output value. (see paragraph 0045 of the present specification as amended).

Applicant avers that Claim 1 as amended has greatly expanded the differences between Claim 1 and the combination of Childs and Yamagawa. In addition, Applicant incorporates by reference all previous remarks regarding the limitations of the combination of Childs and Yamagawa made in previous responses.

As the combination of the prior art of record does not render the claimed invention of Claim 1 as amended obvious, Applicant respectfully requests that the present rejection to Claim 1 be removed and that Claim 1 be moved to allowance.

As Claims 2-8 ultimately depend from allowable Claim 1, Applicant requests that these Claims be also moved through to allowance.

<u>Claims 11-20:</u>

As to Claim 11, Applicant currently amends Claim 11 to incorporate similar limitations to Claim 1 which capture several of the advantages of reduced hardware cost and ease of computation as noted above for Claim 1.

As with Claim 1 above, the combination of the prior art of record does not render the claimed invention of Claim 11 as amended obvious. Applicant respectfully requests that the present rejection to Claim 11 be removed and that Claim 11 be moved to allowance.

As Claims 12-20 ultimately depend from allowable Claim 11, Applicant requests that these Claims also be moved through to allowance.

Claim 21, 31-32:

As for Claim 21, Applicant amends Claim 21 to add similar limitations to those in Claim 1 or Claim 11.

As reasoned above, as the combination of the prior art of record does not render the claimed invention of Claim 21 as amended obvious, Applicant respectfully requests that the present rejection to Claim 21 be removed and that Claim 21 be moved to allowance.

As Claims 30-31 ultimately depend from allowable Claim 21, Applicant requests that these Claims also be moved through to allowance.

Claims 32-33:

As for Claim 32, Applicant amends Claim 32 to add similar limitations to those in Claim 1 or Claim 11.

As reasoned above, as the combination of the prior art of record does not render the claimed invention of Claim 32 as amended obvious, Applicant respectfully requests that the present rejection to Claim 32 be removed and that Claim 32 be moved to allowance.

Applicant herein cancels Claim 33.

Conclusion

In view of the foregoing amendments and remarks, Applicant respectfully submits that all pending Claims are patentable over the cited art of record and are in condition for allowance. Therefore, Applicant requests the Examiner to reconsider and withdraw the outstanding rejections and pass this application to allowance.

If the Examiner believes a telephone conference would expedite the allowance of the claims, the Examiner is invited to contact Stuart P. Kaler at (408) 200-7387.

Respectfully submitted,

/Stuart P. Kaler /

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Dated: March 20, 2008